

# ARIZONA FIRE & MEDICAL AUTHORITY

## 2018 International Fire Code Adoption with Amendments

*Effective September 22, 2020*



# Arizona Fire & Medical Authority

The Governing Boards of the North County Fire & Medical District and South County Fire & Medical District approved the adoption of an Intergovernmental Agreement forming the first Fire & Medical Authority in Maricopa County, Arizona. The new Arizona Fire & Medical Authority (Authority) was established pursuant to Arizona Revised Statutes governing a Joint Powers Authority (JPA).

The Authority covers more than 275 square miles and proudly serves over 75,000 residents within the communities of Coldwater Ranch, Corte Bella, Cross River, Dos Rios, Pinnacle Peak County Island, Rancho Cabrillo, Rancho Silverado, Rio Sierra, Sun City West, Sun Lakes, Sundero, Tonopah, Wittmann and many other areas of Maricopa County.

## 2018 International Fire Code Adoption and Amendments

The International Fire Code (IFC) 2018 Edition is hereby adopted by the Arizona Fire & Medical Authority (Authority) Governing Board for the purpose of establishing minimum requirements consistent with nationally recognized good practice for providing a reasonable level of life safety protection from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures, and premises.

The International Fire Code as adopted and amended herein shall be enforced by the Authority Fire Marshal, who shall operate under the supervision of the Authority Fire Chief.

The 2018 edition of the International Fire Code (2018 IFC) along with the Amendments shall be known as the "Arizona Fire & Medical Authority Fire Code" or "Authority Fire Code".

The 2018 International Fire Code is hereby amended by the Authority Governing Board in the following respects:

# CHAPTER 1 ADMINISTRATION

## SECTION 101 SCOPE AND GENERAL REQUIREMENTS

**Amend section 101.1 as follows:**

**[A] 101.1 Title.** This regulation shall be known as the *2018 International Fire Code with Arizona Fire & Medical Authority Amendments*, hereinafter referred to or cited as “this code”, or the Arizona Fire & Medical Authority Fire Code.

**Delete and replace section 101.2.1 as follows:**

**[A] 101.2.1 Appendices.** The following appendices are adopted and amended as part of this Code by the Arizona Fire & Medical Authority (Authority): B, C, D, E, F, I, J as added and/or amended.

Appendix B	Fire-Flow Requirements for Buildings
Appendix C	Fire Hydrant Locations and Distribution
Appendix D	Fire Apparatus Access Roads
Appendix E	Hazard Categories
Appendix F	Hazard Ranking
Appendix I	Fire Protection Systems—Noncompliant Conditions
Appendix J	Building Information Sign

- A. The International Mechanical Code, 2018 Edition, as published and copyrighted by the International Code Council, including all appendices.
- B. The International Building Code, 2018 Edition, as published and copyrighted by the International Code Council, including all appendices.
- C. The International Fuel Gas Code, 2018 Edition, as published and copyrighted by the International Code Council, including all appendices.
- D. The International Residential Code, 2018 Edition, as published and copyrighted by the International Code Council, including all appendices.
- E. The most recent Edition of the National Fire Codes and Standards published by the National Fire Protection Association (NFPA), and the most recent edition of the NFPA Life Safety Code.

## SECTION 104 GENERAL AUTHORITY AND RESPONSIBILITY

**Section 104.1.1 is hereby added as follows:**

**104.1.1 Assuming Jurisdiction of Fire Prevention Standards.** Pursuant to A.R.S. §48.805.B 4; Enforce the fire code adopted by the district, if any, and assist the office of the state fire marshal in the enforcement of fire protection standards of this state within the fire district including enforcement of a nationally recognized fire code if expressly authorized by the Office of the State Fire Marshal.

**Section 104.10 is hereby deleted and replaced with the following language:**

**104.10 Fire Investigations.** The Authority shall investigate or cause to be investigated the origin, cause and circumstance of each and every fire within the Authority and coming to the Authority's attention. If the fire appears to the Fire Investigator that such fire is of suspicious origin, the Fire Investigator shall notify the appropriate law enforcement agency and shall secure the site until the law enforcement agency takes control of the site. Information relating to trade secrets or processes shall not be made part of the public record unless directed by a court of law.

## SECTION 105 PERMITS

**Amend Section 105.6.2 as follows:**

**Section 105.6.2 Amusement Building** is amended as follows:

Amusement building *and events*. An operational permit is required for any amusement building *or event*.

## SECTION 106 FEES

**Add Section 106.7 as follows:**

**106.7 Operational Permit and Licensure Permit Fees.** The Fire Chief or his or her designee shall charge an Operational Permit Fee or Licensure Permit Fee for each fire code compliance inspection relating to the issuance of the permit. The fee amount shall be in accordance with the fee schedule established by Governing Board Resolution. The type of permit will be based on the type of occupancy classification.

## SECTION 107 INSPECTIONS

### Add Section 107.5 as follows:

**107.5 Reinspection.** A reinspection fee may be assessed for each permitted inspection or reinspection when such portion of work for which inspection is called, is not complete or when corrections called for are not made. If the items that were identified during the first reinspection of a particular phase are not corrected at the time of the reinspection, the permit will be locked out and further inspections will not be scheduled until a reinspection fee is paid. Reinspection fees may also be assessed when:

1. The permit is not posted or otherwise available on the work site.
2. The *approved* plans are not readily available to the inspector.
3. Access to the site is not provided on the date for which the inspection is scheduled.
4. A competent responsible party representative is not on-site at time of inspection.
5. Significant deviations from the approved plans are found that have not been approved by the fire code official.
6. The correct address is not provided so that an inspection can be made as scheduled.

Each reinspection will be assessed this fee. This procedure will be repeated on each phase of the installation and inspection process.

## SECTION 109 BOARD OF APPEALS

### Amend Section 109.1 as follows:

**[A] 109.1 Appeals.** Whenever an applicant disputes the application or interpretation of this Code by Authority staff, a written appeal may be filed with the Authority Fire Chief within 14 calendar days.

1. The appeal will be heard by the fire chief or an authorized representative within 10 working days of the receipt of the appeal.
2. Adequate information shall be provided by the applicant on the Petition of Appeal to fully describe the condition(s) in question.
3. The fire chief shall consult with the fire code official, and/or an authorized representative as deemed appropriate, to provide additional information regarding the appeal.
4. The applicant may, but is not required to, meet with the fire chief or a designated representative to discuss the appeal.

5. If the appeal is denied, the applicant shall comply with the requirement(s) of the fire code or file an appeal with the Authority Governing Board within 30 calendar days from the date the appeal was denied.

## **SECTION 110 VIOLATIONS**

**Section 110.4 hereby is deleted and replaced with the following language:**

**110.4 Violation Penalties.** Persons who shall violate a provision of this Code or shall fail to comply with any of the requirements thereof or who shall erect, install, alter, repair or do work in violation of the approved construction documents or directive of the fire code official, or of a permit or certificate used under provisions of this Code, shall be guilty of a Class 1 misdemeanor punishable by a fine of not more than \$2,500.00 dollars or by imprisonment not exceeding six months, or both such fine and imprisonment. Such fine and imprisonment shall be at the discretion of the court. Each day that a violation continues after due notice has been served shall be deemed a separate offense.

## **SECTION 112 STOP WORK ORDER**

**Amend Section 112.4 as follows:**

**112.4 Failure to Comply** Any person who shall continue any work after having been served with a stop-work order, except only such work that person was directed to perform to remove a violation or unsafe condition, shall be liable to a fine of not less than \$500.00 dollars or more than \$2,500.00 dollars.

## **CHAPTER 5 FIRE SERVICE FEATURES**

### **SECTION 503 FIRE APPARATUS ACCESS ROADS**

**Section 503.4 hereby is deleted and replaced with the following language:**

**503.4 Obstruction of fire apparatus access roads.** Excluding authorized emergency vehicles, fire apparatus access roads shall not be obstructed in any manner, including the parking of vehicles. The minimum widths and clearances established by Section 503.2.1 through 503.2.8 shall be maintained at all times.

## **SECTION 505 FIRE APPARATUS ACCESS ROADS**

**Amend Section 505.1 as follows:**

**Section 505.1 Address identification** is amended as follows:

New and existing buildings shall have approved address numbers, building numbers or building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Where required by the fire code official, address numbers shall be provided in additional approved locations to facilitate emergency response. Address numbers shall be numbers or alphabetical letters. Numbers shall be a minimum of 6 inches high with a minimum stroke width of 0.5 inches. Address numbers should be proportionate to building size, and larger numbers may be required by the fire code official to facilitate emergency response.

## **SECTION 506 KEY BOXES**

**Section 506.1.3 is hereby added as follows:**

**506.1.3 Key Boxes.** The lock box, must be an approved model utilized by the Authority and shall be installed 30” to 60” above finished grade. Authorized lock box order forms are available at the Authority’s Administrative Office during normal business hours.

## **SECTION 507 FIRE PROTECTION WATER SUPPLIES**

**Amend Section 507.1 as follows:**

**Section 507.1 Required Water Supply.** Is amended by adding the following:

In areas where municipal or private water supply is not available, *NFPA 1142 Standard on Water Supplies for Suburban and Rural Fire Fighting*, may be utilized to calculate required fire flows.

# CHAPTER 9 FIRE PROTECTION AND LIFE SAFETY SYSTEMS

## SECTION 901 GENERAL

**Amend Section 901.2 as follows:**

**Section 901.2 Construction Documents** is amended by adding the following:

Automatic sprinkler system plans shall be submitted bearing a review certification and signature of a minimum level III NICET Certified Engineering Technician or Engineer's stamp. Fire sprinkler plans for high-piled combustible storage occupancies shall require a registered fire protection engineer stamp. Fire alarm system plans shall be submitted bearing a review certification and signature of a minimum level III NICET Technician or Arizona registrant.

**Amend Section 901.6.3 as follows:**

**Section 901.6.3 Records** is amended to read as follows:

Records of all system inspections, tests, and maintenance required by the referenced standards shall be maintained, and reports of system deficiencies shall be forwarded to the authority having jurisdiction.

**Add Section 901.11 as follows:**

**901.11 Clearance Around Fire-Protection Systems and Equipment.** A minimum 3-foot (92 cm) clear space shall be maintained for access to fire protection equipment, including control valves and control panels, when fire protection equipment is not located within a dedicated room.



## SECTION 903 AUTOMATIC SPRINKLER SYSTEMS

**Section 903.2, delete and replace with the following language:**

**Section 903.2 Where Required.** All new commercial occupancies, as defined by the International Building Code, for which a building or construction permit is obtained, shall be protected throughout the entire structure by a fully automatic sprinkler system. Exception: R-3 occupancies less than 5,000 square feet gross or where fire-flow requirements of Appendix B of the International Fire Code cannot be attained. Installation of the sprinkler system shall be in accordance with the requirements of NFPA 13, unless otherwise approved by the Fire Chief or his or her designee.

Existing buildings, structures, and occupancies will not require retrofitting with fire sprinkler systems to meet current code standards unless:

1. Building fire resistance has decreased; or
2. Building area has increased more than 2,500 square feet; or
3. Building occupant load has increased; or
4. Fire or other structural damage in buildings exceeds 20% of the square footage; or
5. Fire or other structural damage in buildings exceeds 20% of the building valuation; or
6. As determined by the Fire Chief and his or her designee.

## SECTION 905 STANDPIPE SYSTEMS

**Section 905.3.1, delete and replace with the following language:**

**905.3.1 Building Height.** Class I standpipe systems, as defined in section 902.1 of the International Fire Code, 2018 edition, “Standpipe System, Classes of” shall be installed throughout buildings where the floor level of the highest story is one floor above the lowest level of fire department apparatus access, or where the floor level of the lowest story is one floor below the highest level of fire department apparatus access.

## SECTION 907 FIRE ALARM AND DETECTION SYSTEMS

**Section 907.2, delete and replace with the following language:**

**Section 907.2 Where Required – New Buildings and Structures.** All new commercial occupancies (any structure other than one- and two-family dwelling) for which a building or construction permit is obtained shall be protected throughout the entire structure by a fully automatic fire alarm system. Installation of the fire alarm system shall be in accordance with the requirements of NFPA 72, unless otherwise approved by the Fire Chief or his or her designee. All fire alarms shall be addressable systems with Class “A” wiring. An approved fully automatic fire detection system shall be installed in accordance with the provisions of this Code and with NFPA 72. Monitoring shall be by a central station as defined by NFPA 72 Section 3.3.193.1. Devices, combinations of devices, appliances, and equipment shall comply with Section 907.1.2. The automatic fire detectors shall be smoke detectors, except that an approved alternative type of detectors shall be installed in spaces such as boiler rooms, utility rooms and janitor closets with water heater and sink, where, during normal operation, products of combustion are present in sufficient quantity to actuate a smoke detector.

## SECTION 912 FIRE DEPARTMENT CONNECTIONS

**Section 912.2, delete and replace with the following language:**

**912.2 Location.** With respect to hydrants, driveways, buildings, and landscaping, fire department connections shall be so located that fire apparatus and hose connected to supply the system will not obstruct access to the buildings for other fire apparatus. The location of the fire department connections shall be remote from the building and 36” above grade. Additionally, the fire department connection shall be located no closer than 30 feet or not further than 70 feet from a hydrant.

# CHAPTER 12

## ENERGY SYSTEMS

### SECTION 1201

#### SCOPE

Amend Section 1201.1 as follows:

**1201.1 Scope.** The provisions of this Chapter shall apply to the installation, operation, and maintenance of energy systems used for generating or storing energy

### SECTION 1203

#### EMERGENCY AND STANDBY POWER SYSTEMS

Amend Section 1203.1.1 as follows:

**1203.1.1 Stationary Generators.** Stationary emergency and standby power generators required by this Code shall be listed in accordance with UL 2200. Associated flammable or combustible liquid tanks shall also comply with IFC Chapters 50 and 57.

### SECTION 1204

#### SOLAR PHOTOVOLTAIC POWER SYSTEMS

Add Sections 1204.1.1 through 1204.1.3 as follows:

**1204.1.1 Permits.** Permits shall be obtained for solar voltaic systems in accordance with Section 105.7.21

**Exception:** Solar photovoltaic systems with less than 3 Kw alternating current nameplate rating.

**1204.1.2 Marking.** Marking is required on the interior and exterior direct-current (DC) conduit, enclosures, race- ways, cable assemblies, junction boxes, combiner boxes, and disconnects.

**1204.1.2.1 Materials.** The materials used for marking shall be reflective, weather-resistant, and suitable for the environment. Marking as required in Sections 1204.1.2 through 1204.1.6 shall have all letters capitalized with a minimum height of 3/8 inch (9.5 mm) white on red background.

**1204.1.2.2 Marking Content.** The marking shall contain the words “WARNING: PHOTOVOLTAIC POWER SOURCE.”

**1204.1.2.3 Main Service Disconnect.** The marking shall be placed adjacent to the main service disconnect in a location clearly visible from the location where the disconnect is operated.

**1204.1.3 Location of Marking.** Marking shall be placed on interior and exterior DC conduit, raceways, enclosures and cable assemblies every 10 feet (3,048 mm), within 1 foot (305 mm) of turns or bends and within 1 foot (305 mm) above and below penetrations of roof/ceiling assemblies, walls or barriers.

**Amend Section 1204.2 as follows:**

**1204.2 Access and Pathways.** Roof access, pathways, and spacing requirements shall be provided in accordance with Sections 1204.2.1 through 1204.3.3. Pathways shall be over areas capable of supporting firefighters accessing the roof. Pathways shall be located in areas with minimal obstructions, such as vent pipes, conduit or mechanical equipment. Residential structures shall be designed so that each photovoltaic array is not greater than 150 feet (45,720 mm) by 150 feet (45,720 mm) in either axis.

**Section 1204.2.1, delete and replace with the following language:**

**1204.2.1 Solar Photovoltaic Systems for Group R-3 Buildings.** Solar photovoltaic systems for Group R-3 buildings shall comply with Sections 1204.2.1.1 through 1204.2.1.5.

**1204.2.1.1 Roof Access Points.** Roof access points shall be located in areas that do not require the placement of ground ladders over openings such as windows or doors and located at strong points of building construction in locations where the access point does not conflict with overhead obstructions such as tree limbs, wires, or signs.

**1204.2.1.2 Residential Buildings with Hip Roof Layouts.** Panels or modules installed on residential buildings with hip roof layouts shall be located in a manner that provides two 3-foot-wide (914 mm) clear access pathway from the eave to the ridge on each roof slope where panels or modules are located.

**1204.2.1.3 Residential Buildings with a Single Ridge.** Panels/modules installed on residential buildings with a single ridge shall be located in a manner that provides two 3-foot-wide (914 mm) access pathways from the eave to the ridge on each roof slope where panels/modules are located.

**1204.2.1.4 Residential Buildings with Roof Hips and Valleys.** Panels or modules installed on residential buildings with roof hips and valleys shall be located not closer than 18 inches (457 mm) to a hip or a valley where panels or modules are to be placed on both sides of a hip or valley. Where panels are to be located on only one side of a hip or valley that is of equal length, the panels shall be permitted to be placed directly adjacent to the hip or valley.

**1204.2.1.5 Residential Building Smoke Ventilation.** Panels/modules installed on residential buildings shall be located no higher than 3 feet (914 mm) below the ridge in order to allow for fire department smoke ventilation operations.

**Amend Section 1204.3 as follows:**

**1204.3 Other Than Group R-3 Buildings.** Access to systems for buildings, other than those containing Group R-3 occupancies, shall be provided in accordance with Sections 1204.3.1 through 1204.3.3.

**Exception:** Where it is determined by the fire code official that the roof configuration is similar to that of a Group R-3 occupancy, the residential access and ventilation requirements in Sections 1204.2.1.1 through 1204.2.1.5 are a suitable alternative.

**Amend Section 1204.3.2 as follows:**

**1204.3.2 Interior Pathways.** Interior pathways shall be provided between array sections to meet the following requirements:

1. Pathways shall be provided at intervals not greater than 150 feet (45,720 mm) throughout the length and width of the roof.
2. A pathway not less than 4 feet (1,219 mm) wide in a straight line to roof standpipes or ventilation hatches.
3. A pathway not less than 4 feet (1,219 mm) wide around roof access hatches, with no fewer than one such pathway to a parapet or roof edge.
4. The pathway shall be over areas capable of supporting the live load of firefighters accessing the roof.
5. The centerline axis pathways shall be provided in both axes of the roof. Centerline axis pathways shall run where the roof structure is capable of supporting the live load of firefighters accessing the roof.

**Amend Section 1204.3.3 as follows:**

**1204.3.3 Smoke Ventilation.** The solar installation shall be designed to meet the following requirements:

3. Arrays shall be not greater than 150 feet (45 720 mm) by 150 feet (45 720 mm) in the distance in either axis in order to create opportunities for fire department smoke ventilation operations.

## SECTION 1206 ELECTRICAL ENERGY STORAGE SYSTEMS

**Amend Section 1206.2 as follows:**

**1206.2 Stationary Storage Battery Systems.** Stationary storage battery systems having capacities exceeding the values shown in Table 1206.2 shall comply with Section 1206.2.1 through 1206.2.13.6, as applicable. *Approved signage is required for all installations.*

**Amend Section 1206.2.1 as follows:**

**1206.2.1 Permits.** Permits shall be obtained for the construction of stationary storage battery systems *with a capacity of 3 kWh or more, in accordance with Section 105.7.2.*

**Amend Section 1206.2.3 as follows:**

**1206.2.3 Hazard Mitigation Analysis.** A failure modes and effects analysis (FMEA) or other approved hazard mitigation analysis shall be provided in accordance with Section 104.7.2 under any of the following conditions.

4. Where required by the fire code official.

**Amend Section 1206.2.3.1 as follows:**

**1206.2.3.1 Fault Condition.** The hazard mitigation analysis shall evaluate the consequences of the following modes, and others deemed necessary by the fire code official. Only single failure modes shall be considered.

8. Failure of temperature control.

**Amend Section 1206.2.8.3 as follows:**

**1206.2.8.3 Stationary Battery Arrays.** Storage batteries, prepackaged stationary storage battery systems and pre-engineered stationary storage battery systems shall be segregated into stationary battery arrays not exceeding 50 kWh (180 megajoules) each. Each stationary battery array shall be spaced not less than 3 feet (914 mm) from other stationary battery arrays and from walls in the storage room or area. The storage arrangements shall comply with Chapter 10.

2. Listed pre-engineered stationary storage battery systems and prepackaged stationary storage battery systems shall not exceed 250 kWh (900 megajoules) each, *where approved by the fire code official.*

**Amend Section 1206.2.8.7.1 as follows:**

**1206.2.8.7.1 Separation.** Stationary storage battery systems located outdoors shall be separated by a minimum of 10 feet (3,048 mm) from the following:

**Amend Section 1206.2.8.7.2 as follows:**

**1206.2.8.2 Separation.** Rooms containing stationary storage battery systems shall be separated from other areas of the building in accordance with Section 509.1 of the *International Building Code*. Battery systems shall be allowed to be in the same room with the equipment they support.

**TABLE 1206.2.8.7 OUTDOOR INSTALLATIONS**

Compliance Required	Remote Installations	Installations Near Exposures
General Installation Requirements	Yes	Yes
Size and separation	No	Yes <sup>a</sup>
Smoke and automatic fire detection	Yes	Yes
Fire suppression systems	Yes <sup>b</sup>	Yes
Maximum enclosure size	Yes	Yes
Vegetation control	Yes	Yes
Means of egress separation	Yes	Yes
Clearance to exposures	Yes	Yes
Technology specific protection	Yes	Yes

a. In outdoor walk-in units, spacing is not required between energy storage systems units and the walls of the enclosure.

b. Where approved by the *fire code official*, fire suppression systems are permitted to be omitted.

**Amend Section 1206.2.11.3 as follows:**

**1206.2.11.3 Exhaust Ventilation.** Where required by Table 1206.2.10, ventilation of rooms containing stationary storage battery systems shall be provided in accordance with the *International Mechanical Code* and one of the following:

1. The ventilation system shall be designed to limit the maximum concentration of flammable gas to 10 percent of the lower flammability limit, or for hydrogen, 1.0 percent of the total volume of the room.
2. Continuous ventilation shall be provided at a rate of not less than 1 cubic foot per minute (cfm) per square foot [0.00508 m<sup>3</sup>/(s • m<sup>2</sup>)] of floor area, but not less than 150 cfm (4 m<sup>3</sup>/min). The exhaust system shall be designed to provide air movement across all parts of the floor for gases having a vapor density greater than air and across all parts of the vaulted ceiling for gases having a vapor density less than air.

**TABLE 1206.2.10 BATTERY TECHNOLOGY SPECIFIC**

Compliance Required <sup>b</sup>	Battery Technology				Other Battery Storage Systems and Battery Technologies <sup>b</sup>
	Lead-acid	Ni-Cad & Ni-MH	Lithium-ion	Flow	
Exhaust ventilation	Yes	Yes	Yes	Yes	Yes
Spill control and neutralization	Yes <sup>c</sup>	Yes <sup>c</sup>	No	Yes	Yes
Explosion control	Yes <sup>a</sup>	Yes <sup>a</sup>	Yes	Yes	Yes
Safety Caps	Yes	Yes	No	Yes	Yes
Thermal runaway	Yes <sup>d</sup>	Yes	Yes <sup>e</sup>	Yes	Yes <sup>e</sup>

- a. Not required for lead-acid and nickel cadmium batteries at facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 VAC and 60 VDC.
- b. Protection shall be provided unless documentation acceptable to the *fire code official* is provided in accordance with 2018 *International Fire Code* Section 104.7.2 that provides justification why the protection is not necessary based on the technology used.
- c. Applicable to vented (i.e. flooded) type nickel cadmium and lead acid batteries.
- d. Not required for vented (i.e. flooded) type lead acid batteries.
- e. The thermal runaway protection is permitted to be part of a battery management system that has been evaluated with the battery as part of the evaluation to UL 1973.

**Add Section 1206.4 as follows:**

**1206.4 Energy Storage System in Group R-3 and R-4 Occupancies.** Energy storage systems in Group R-3 and R-4 occupancies shall be installed and maintained in accordance with this section. The temporary use of an owner or occupant's electric-powered vehicle as an energy storage system shall be in accordance with this section.

**Exception:** Energy storage systems in Group R-3 and R-4 occupancies with a capacity of 3 kWh or less.



**Add Section 1206.4.3 as follows:**

**1206.4.3 Location.** Energy storage systems shall only be installed in the following locations:

1. Detached garages and detached accessory structures.
2. Attached garages separated from the dwelling unit living space and sleeping units in accordance with Section 406.3.2 of the *International Building Code*.
3. Outdoors on exterior walls in accordance with IFC 1206.4.3.1
4. Other locations with fire code official approval.

**Add Section 1206.4.3.1 as follows:**

**1206.4.3.1 Exterior Wall and Outdoor Installations.** Energy storage systems shall be permitted to be installed outdoors on exterior walls of buildings or on the ground where all of the following conditions are met:

1. The maximum energy capacity of individual energy storage system units shall not exceed 20 kWh.
2. *The installation is in accordance with zoning setback requirements.*
3. The energy storage system shall be installed in accordance with the manufacturer's instructions and their listing.
4. Individual energy storage system units shall be separated from each other by not less than 3 feet (914 mm).
5. The energy storage system shall be separated from doors, windows, operable openings into buildings, or HVAC inlets by at least 5 feet (1,524 mm).

**Exception:** Where approved by the fire code official, smaller separation distances in Items 4 and 5 may be permitted based on large scale fire testing

**Add Sections 1206.4.4 through 1206.4.9 as follows:**

**1206.4.4 Energy Ratings.** Individual energy storage systems units shall have a maximum rating of 20 kWh. The aggregate rating structure shall not exceed:

1. 80 kWh on exterior walls.
2. 80 kWh outdoors on the ground.

**1206.4.5 Electrical installation.** Energy storage system shall be installed in accordance with NFPA 70. Inverters shall be listed and labeled in accordance with UL 1741 or provided as part of the UL 9540 listing. Systems connected to the utility grid shall use inverters listed for utility interaction.

**1206.4.6 Fire Detection.** Rooms and areas within dwellings units, sleeping units and attached garages in which energy storage systems are installed shall be protected by smoke alarms in accordance with Section 907.2.10. A heat detector listed and interconnected to the smoke alarms shall be installed in locations within dwelling units, sleeping units and attached garages where smoke alarms cannot be installed based on their listing.

**1206.4.7 Protection From Impact.** Stationary storage battery systems installed in a location subject to vehicle damage shall be protected by approved barriers. Appliances in garages shall also be installed in accordance with Section 304.3 of the *International Mechanical Code*.

**1206.4.8 Ventilation.** Indoor installations of energy storage systems that include batteries that produce hydrogen or other flammable gases during charging shall be provided with ventilation in accordance with Section 1206.2.11.3.

**1206.4.9 Toxic and Highly Toxic Gas.** Energy storage systems that have the potential to release toxic or highly toxic gas during charging, discharging and normal use conditions shall not be installed within Group R-3 or R-4 occupancies.

## **CHAPTER 33**

### **FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION**

**Section 3310.1.1 is hereby added as follows:**

**Section 3310.1.1 Access Road Signs.** During construction, approved signs shall be erected and located to direct emergency responders into and through the construction site.

## **APPENDIX B FIRE-FLOW REQUIREMENTS FOR BUILDINGS**

### **SECTION B105 FIRE-FLOW REQUIREMENTS FOR BUILDINGS**

**Amend Section B105.1 (2) as follows:**

**Table B105.1 (2) REFERENCE TABLE** is amended by adding Footnote “C” as follows:

Footnote C: In special circumstances, where the municipal or rural water supply will not provide the required 1,500 gpm, the fire code official may accept a lesser amount.

## **APPENDIX D FIRE APPARATUS ACCESS ROADS**

### **SECTION D103 MINIMUM SPECIFICATIONS**

**Appendix D, Section D103.6.1.1 is hereby added as follows:**

**D103.6.1.1 Fire Lane.** In addition to Section D103.6 Signs, Fire Lane curbs may be painted red in color on the top and outward face of the curb and shall be marked with the words “NO PARKING – FIRE LANE” in 4-inch white block letters on the top and vertical face of the curb spaced every 30 feet on center, when approved by the fire code official.